DETAILED ACTION

1. Applicant's amendment filed July 19, 2010 was received. Claims 1, 13, 14 and 18 were amended. Claim 20 was cancelled. Claim 23 was added.

2. The text of those sections of Title 35 U.S.C. code not included in this action can be found in the prior Office Action issued on August 14, 2009.

Claim Rejections - 35 USC § 102/103

3. Claims 1, 11, 13-15, 18, 19 and 21-23 are rejected under 35 U.S.C. 102(b) as being anticipated by or, in the alternative under 35 U.S.C. 103(a) as obvious over Hikata et al (JP 7-94193) (hereinafter "Hikata").

Regarding claim 1, Hikata teaches a manganese battery (see abstract) an active material for a battery anode, the material is made of zinc and virtually contains no lead (see paragraphs 0001 and 0010). Hikata further discloses the active material consists of zinc for the major substance with 0.1-0.8 percent mass of bismuth (1000 ppm or 0.1%) (see par. 0010 and Table 2, line 74). Hikata further teaches that the processing temperature is in the range of 180-220 degrees (see par. 0013). Although, Hikata does not specifically teach that the disclosed material exhibits the recited change in weight due to corrosion upon exposure to the electrolyte solution as claimed. However, regarding composition claims, if the composition is the same, it must have the same properties (see MPEP § 2112.01, II.). Consequently, as Hikata teaches the same

material composition, it is inherently anticipated that the active material for the battery anode would exhibit the same properties as recited in the claim.

Hikata does not specifically teach the average grain size diameter of said zinc sheet and said zinc can to be in the range of 7.8 to 25.1 μm.

However, it is inherent that the average grain diameter of said zinc sheet and said zinc can would be in the range of 7.8 to 25.1 μm, because the instant application has the same assignee as Hikata. Further, Hikata prepares the zinc sheet and zinc can by way of heat treatment with a roller that has a hexagon-head pellet in the same temperature range (see pars. 0013 and 0014) which is the same process as Applicant's.

In the alternative, the active material size can be optimized for the surface area of the reaction. Hikata teaches that the corrosion of a zinc alloy is controlled remarkably, which in turn means that the grain diameter size must be controlled (see pars. 0019 and 0021). The discovery of an optimum value of a known result effective variable, without producing any new or unexpected results, is within the ambit of a person of ordinary skill in the art. See *In re Boesch*, 205 USPQ 215 (CCPA 1980) (see MPEP § 2144.05, II.).

Therefore, it would have been obvious to one with ordinary skill in the art to optimize the average grain diameter of said zinc sheet and said zinc can in the manganese dry battery, because it would optimize the surface area of reaction and minimize corrosion.

Regarding claim 11, Hikata teaches the active material having a concentration of 99.99% or more of zinc metal (see paragraph 0010).

Regarding claims 13, Hikata teaches a method of manufacturing a manganese dry battery with use of an anode zinc plate which is processed from an anode active material sheet in a temperature in a range of 120-210 degree Centigrade (180-220 degree Centigrade) where the material contains zinc and the addition of bismuth (see pars. 0006 and 0013; Table 2, line 74; and claim 1).

Regarding claim 15, Hikata does not specifically teach the metallographic grain size ratio.

However, it is inherent that the that the metallographic grain size diameter would be in the range of 1.04 to 1.41 of said zinc sheet and said zinc can, because the instant application has the same assignee as Hikata. Further, Hikata prepares the zinc sheet and zinc can by way of heat treatment with a roller that has a hexagon-head pellet in the same temperature (see pars. 0013 and 0014) which is the same process as Applicant's.

In the alternative, the active material size can be optimized for the surface area of the reaction. Hikata teaches that the corrosion of a zinc alloy is controlled remarkably, which in turn means that the grain diameter size must be controlled (see pars. 0019 and 0021). The discovery of an optimum value of a known result effective variable, without producing any new or unexpected results, is within the ambit of a person of ordinary skill in the art. See *In re Boesch*, 205 USPQ 215 (CCPA 1980) (see MPEP § 2144.05, II.).

Therefore, it would have been obvious to one with ordinary skill in the art to optimize the average grain diameter of said zinc sheet and said zinc can in the

manganese dry battery, because it would optimize the surface area of reaction and minimize corrosion.

Regarding claim 18, Hikata teaches a manganese battery with an active material for a battery anode, the material is made of zinc and virtually contains no lead (see paragraphs 0001 and 0010). Hikata further discloses the active material consists of zinc for the major substance with 0.1-0.8 percent mass of bismuth (1000 ppm or 0.1%) and magnesium in the range of 0.0003-0.003 percent by mass (10 ppm or 0.001%) (see pars. 0008, 0010 and Table 2, line 74). Hikata further teaches that the processing temperature is in the range of 180-220 degrees (see par. 0013). Although, Hikata does not specifically teach that the disclosed material exhibits the recited change in weight due to corrosion upon exposure to the electrolyte solution as claimed. However, regarding composition claims, if the composition is the same, it must have the same properties (see MPEP § 2112.01, II.). Consequently, as Hikata teaches the same material composition, it is inherently anticipated that the active material for the battery anode would exhibit the same properties as recited in the claim.

Hikata does not specifically teach the average grain size diameter of said zinc sheet and said zinc can to be in the range of 7.8 to 25.1 μm.

However, it is inherent that the average grain diameter of said zinc sheet and said zinc can would be in the range of 7.8 to 25.1 μm, because the instant application has the same assignee as Hikata. Further, Hikata prepares the zinc sheet and zinc can by way of heat treatment with a roller that has a hexagon-head pellet in the same temperature (see pars. 0013 and 0014) which is the same process as Applicant's.

In the alternative, the active material size can be optimized for the surface area of the reaction. Hikata teaches that the corrosion of a zinc alloy is controlled remarkably, which in turn means that the grain diameter size must be controlled (see pars. 0019 and 0021). The discovery of an optimum value of a known result effective variable, without producing any new or unexpected results, is within the ambit of a person of ordinary skill in the art. See *In re Boesch*, 205 USPQ 215 (CCPA 1980) (see MPEP § 2144.05, II.).

Therefore, it would have been obvious to one with ordinary skill in the art to optimize the average grain diameter of said zinc sheet and said zinc can in the manganese dry battery, because it would optimize the surface area of reaction and minimize corrosion.

Regarding claim 19, Hikata teaches the active material having a concentration of 99.99% or more of zinc metal (see paragraph 0010).

Regarding claims 21, Hikata teaches a method of manufacturing a manganese dry battery with use of an anode zinc plate which is processed from an anode active material sheet in a temperature in a range of 120-210 degree Centigrade (180-220 degree Centigrade) where the material contains zinc and the addition of bismuth (see pars. 0006 and 0013; Table 2, line 74; and claim 1).

Regarding claim 22, Hikata does not specifically teach the metallographic grain size ratio.

However, it is inherent that the the metallographic grain size diameter would be in the range of 1.04 to 1.41 of said zinc sheet and said zinc can, because the instant

application has the same assignee as Hikata. Further, Hikata prepares the zinc sheet and zinc can by way of heat treatment with a roller that has a hexagon-head pellet in the same temperature (see pars. 0013 and 0014) which is the same process as Applicant's.

In the alternative, the active material size can be optimized for the surface area of the reaction. Hikata teaches that the corrosion of a zinc alloy is controlled remarkably, which in turn means that the grain diameter size must be controlled (see pars. 0019 and 0021). The discovery of an optimum value of a known result effective variable, without producing any new or unexpected results, is within the ambit of a person of ordinary skill in the art. See *In re Boesch*, 205 USPQ 215 (CCPA 1980) (see MPEP § 2144.05, II.).

Therefore, it would have been obvious to one with ordinary skill in the art to optimize the average grain diameter of said zinc sheet and said zinc can in the manganese dry battery, because it would optimize the surface area of reaction and minimize corrosion.

Regarding claim 23, Hikata teaches that the active material comprises 0.001-0.05 of strontium (Sr) (see par. 0010 and Table 2, line 74).

Regarding claims 14, Hikata teaches a method of manufacturing a manganese dry battery with use of an anode zinc plate (see pars. 0006 and 0013; Table 2, line 74; and claim 1).

Response to Arguments

4. Applicant's arguments filed July 19, 2010 have been fully considered but they are not persuasive.

Applicant's principal argument is:

(a) that the claimed average diameter of a zinc sheet or zinc can active material is not an inherent property.

In regards to Applicant's arguments, please consider the following comments.

(a) Hikata teaches that alloy sample of Table 2 was made using a heat treatment with a heating roller press with a hexagon-head pellet in the same temperature range as Applicant's (see par. 0013). Applicant teaches heat control with a (see pars. 0044-0051 of Applicant's corresponding PGPub) hot rolling with hexagonal pellets to prepare the anode sheet, which is the same as Applicant's. It is inherent that the grain size would be the same if the same process was used in Hikata as Applicant's in regards to the zinc sheet (see par. 0013). Further, from Figs. A and B that were submitted by Applicant it is seen that Fig. A's left edge is the same as Fig. B's edge. Therefore, the can and sheet of Hikata inherently has the same average grain diameter of said zinc sheet or zinc can.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP

§ 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to PATRICIA DAVIS whose telephone number is (571)270-7868. The examiner can normally be reached on 7:30am-5pm EST. Monday-Friday, alternate Fridays off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Dah-Wei Yuan can be reached on 571-272-1295. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/PATRICIA DAVIS/
Examiner, Art Unit 1795

/Dah-Wei D. Yuan/
Supervisory Patent Examiner, Art Unit 1795